Coded Wire Tag Recoveries from the First Release of All-Female and Sterile Groups of Coho Salmon *(O. kisutch)* into the Marine Environment

I. I. Solar, I. J. Baker, E. M. Donaldson,
G. A. Hunter, and E. T. Stone

Department of Fisheries and Oceans
Fisheries Research Branch
West Vancouver Laboratory
4160 Marine Drive
West Vancouver, British Columbia V7V 1N6

November 1986

Canadian Data Report of Fisheries and Aquatic Sciences No. 609

87-00727/

Canadian Data Report of Fisheries and Aquatic Sciences

Data reports provide a medium for filing and archiving data compilations where little or no analysis is included. Such compilations commonly will have been prepared in support of other journal publications or reports. The subject matter of data reports reflects the broad interests and policies of the Department of Fisheries and Oceans, namely, fisheries and aquatic sciences.

Data reports are not intended for general distribution and the contents must not be referred to in other publications without prior written authorization from the issuing establishment. The correct citation appears above the abstract of each report. Data reports are abstracted in *Aquatic Sciences and Fisheries Abstracts* and indexed in the Department's annual index to scientific and technical publications.

Numbers 1–25 in this series were issued as Fisheries and Marine Service Data Records. Numbers 26–160 were issued as Department of Fisheries and the Environment, Fisheries and Marine Service Data Reports. The current series name was introduced with the publication of report number 161.

Data reports are produced regionally but are numbered nationally. Requests for individual reports will be filled by the issuing establishment listed on the front cover and title page. Out-of-stock reports will be supplied for a fee by commercial agents.

Rapport statistique canadien des sciences halieutiques et aquatiques

Les rapports statistiques servent à classer et à archiver les compilations de données pour lesquelles il y a peu ou point d'analyse. Ces compilations auront d'ordinaire été préparées à l'appui d'autrès publications ou rapports. Les sujets des rapports statistiques reflètent la vaste gamme des intérêts et des politiques du ministère des Pêches et des Océans, c'est-à-dire les sciences halieutiques et aquatiques.

Les rapports statistiques ne sont pas destinés à une vaste distribution et leur contenu ne doit pas être mentionné dans une publication sans autorisation écrite préalable de l'établissement auteur. Le titre exact paraît au-dessus du résumé de chaque rapport. Les rapports statistiques sont résumés dans la revue *Résumés des sciences aquatiques et halieutiques*, et ils sont classés dans l'index annuel des publications scientifiques et techniques du Ministère.

Les numéros 1 à 25 de cette série ont été publiés à titre de relevés statistiques, Services des pêches et de la mer. Les numéros 26 à 160 ont été publiés à titre de rapports statistiques du Service des pêches et de la mer, ministère des Pêches et de l'Environnement. Le nom actuel de la série a été établi lors de la parution du numéro 161.

Les rapports statistiques sont produits à l'échelon régional, mais numérotés à l'échelon national. Les demandes de rapports seront satisfaites par l'établissement auteur dont le nom figure sur la couverture et la page du titre. Les rapports épuisés seront fournis contre rétribution par des agents commerciaux.

Canadian Data Report of
Fisheries and Aquatic Sciences No. 609

November 1986

CODED WIRE TAG RECOVERIES FROM THE FIRST RELEASE OF ALL-FEMALE AND STERILE GROUPS OF COHO SALMON (*O. kisutch*) INTO THE MARINE ENVIRONMENT

by

I. I. Solar[1], I. J. Baker[1], E. M. Donaldson[1],
G. A. Hunter[2], and E. T. Stone[3]

[1]Department of Fisheries and Oceans
Fisheries Research Branch
West Vancouver Laboratory
4160 Marine Drive
West Vancouver, British Columbia V7V 1N6

[2]Department of Fisheries and Oceans
Fisheries Research Branch
Pacific Biological Station
Nanaimo, British Columbia V9R 5K6

[3]Department of Fisheries and Oceans
Facility Operations
Capilano Salmon Hatchery
4500 Capilano Road
North Vancouver, British Columbia V7R 4K2

(c) Minister of Supply and Services Canada 1986

Cat. No. Fs 97-13/609E ISSN 0706-6465

Correct citation for this publication:

Solar, I. I., I. J. Baker, E. M. Donaldson, G. A. Hunter, and E. T. Stone. 1986. Coded wire tag recoveries from the first release of all-female and sterile groups of coho salmon (Oncorhynchus kisutch) into the marine environment. Can. Data Rep. Fish. Aquat. Sci. 609: 29 p.

ABSTRACT

Solar, I. I., I. J. Baker, E. M. Donaldson, G. A. Hunter and E. T. Stone. 1986. Coded wire tag recoveries from the first release of all-female and sterile groups of coho salmon (Oncorhynchus kisutch) into the marine environment. Can. Data Rep. Fish. Aquat. Sci. No. 609: 29 p.

Data are presented on the contribution to the fishery of two groups of all-female and sterile coho salmon produced by hormonal treatment at the Capilano Salmon Hatchery in 1978 and released in 1980. The data includes distribution and tag recoveries from a third parallel group selected as control. Data are also provided on the survival, growth, gonadal morphology, flesh composition and fatty acid analysis of subgroups of sterile and female coho salmon held in a net pen at the Pacific Biological Station.

Key words: Oncorhynchus, coho salmon, androgen, estrogen, sterilization, feminization, coded wire tag

RESUME

Solar, I. I., I. J. Baker, E. M. Donaldson, G. A. Hunter and E. T. Stone. 1986. Coded wire tag recoveries from the first release of all-female and sterile groups of coho salmon (Oncorhynchus kisutch) into the marine environment. Can. Data Rep. Fish. Aquat. Sci. No. 609: 29 p.

Sont ici présentées des données sur la contribution à la pêche de deux groupes de saumons coho femelles et stériles produits par traitement hormonal en 1978 à l'étang d'élevage de saumons de Capilano et relâchés en 1980. Ces données concernent la répartition et la récupération des groupes marqués en fonction d'un troisième groupe parallèle constitué pour fins de contrôle. Elles portent également sur la survie, la croissance, la morphologie gonadique, la composition de la chair et l'analyse des acides gras des sous-groupes de saumons coho femelles et stériles gardés dans un parc en filet à la station biologique du Pacifique.

Mots clés: Onchorhynchus, saumon coho, androgène, oestrogène, stérilisation, féminisation, marquage par fil métallique codé

INTRODUCTION

The first release of all-female and sterile Pacific salmon on a pilot production basis was conducted at the Capilano Hatchery, North Vancouver, in the spring of 1980. Two groups of approximately 40,000 coho salmon from the 1978 brood were treated with either 17β-estradiol or 17¶-methyltestosterone as eyed eggs, alevins and fry. Both groups were coded-wire tagged (CWT) and fin clipped at 6 months of age. A third group, part of a study on the impact of rearing density on ocean survival (low density group) (Fagerlund et al., 1983) was later selected as controls. Before release in May 1980 a subgroup of 1,000 of each type (sterile and female) were transferred to a net pen at the Pacific Biological Station (PBS), Nanaimo, to follow-up on their adult performance.

The objectives, management applications and methods of administration of the treatments for the production of all-female and sterile salmonids for ocean release and mariculture have been reviewed by Donaldson and Hunter (1982a, 1985) and by Hunter and Donaldson (1983). Preliminary reports on these releases have been presented at various international meetings (Hunter et al., 1981; Donaldson and Hunter, 1981, 1982b, Donaldson et al. 1984).

This report summarizes information obtained from the 1980 release, including selected reports from the PBS database of coastwide CWT recoveries (Tables 1 to 8, Fig. 1 and 2), and data from the subgroups held in net pens at the Pacific Biological station, of which some sterile fish survived to age 6 plus (Tables 9 to 12).

DATA

The data is presented in Tables as follows:

Table 1. Release Header Report. Gives the identity of each group (CWT numbers) and summary information on the quantities and size of the fish marked and released.

Table 2. Detailed Recoveries by Catch Region and age. Includes the observed, estimated and expanded CWT recoveries by Catch Regions, shown by age classes, in the B.C. commercial (troll=TR and net=N) and sport (SPT) fisheries. For the commercial catch, "observed" is the actual number of tags recovered in a sample of the fishery at a chosen sampling time; "estimated" is an extension of the number of marks recovered to the number of fish caught, and "expanded" is an extension of the latter to account for the proportion of marked fish in the total number of fish released. For the sport data the same

definitions apply with the exception of "estimated" which in this case takes into account the "awareness factor" or ratio of the number reported by the sport fishermen to the number caught.

Table 3. Detailed Recoveries Report by Catch Region, Monthly. Shows the CWT recoveries (observed, estimated and expanded) by recovery year (ages) at monthly intervals.

Table 4. Size of fish in the Commercial Fishery by Recovery Year (ages 3 and 4). Weight data was not being recorded at the time of these recoveries, therefore only length data is included in the reports. For the sport fishery, both weight and length were unavailable.

Table 5. Commercial and sport catch regions and statistical areas, in the form they were grouped to produce Tables 7 and 8 (Fig. 1 and 2).

Table 6. A summary of the total contribution of these releases to the fishery over the period 1980 to 1983 (ages 2 to 5). In consideration of the different quantities of fish released and marked from each group (Table I) and for the purpose of making the contribution comparable the expanded totals of Table 2 have been adjusted to show "per 10,000 fish released." The hatchery escapement and U.S. recoveries data were obtained from SEP, Operations (Carol Cross, personal communication).

Table 7. Detail of the commercial and sport recovery data shown in Table 6, by catch regions and year classes.

Table 8. Detail of the sport fishery included in Georgia Strait Catch Region of Table 7, by statistical areas. For practical purposes certain statistical areas were consolidated. Isolated recoveries in sport catch regions other than Georgia Strait (GSPT) were disregarded.

Table 9. Detail of the commercial and sport recovery data in the U.S., shown in Table 6, by areas and year classes.

Table 10. A summary of gonadal morphology observed during periodic samplings of the subgroups held in the netpen at Nanaimo. The number of observations in each group include the fish for which growth data is reported in Table 10 (January 1981 to January 1982) plus observations made at sampling times not included in Table 10. (July, October and December, 1981)

Table 11. Growth data (length and weight), and gonadosomatic index for the groups held at the net pen (Nanaimo, P.B.S.), at periodic intervals during their third year. After maturation and death of the fish in the all-female group (right ventral clip), monitoring of the growth of the sterile group (left ventral clip) was continued until February, 1984 (age 6+).

Table 12. Proximate composition of raw flesh samples taken from female and sterile fish in Nov. 1981. For comparison purposes we include in the table data from analyses of normal Capilano production coho returning to the Hatchery, at the beginning of the season (July, 1983) and close to the end of progressive sexual maturation. (Bilinski et al. 1984)

Table 13. Data from the analysis of the fatty acids in the total lipids of sterile and all-female fish from the net pen subgroups sampled in November 1981.

ACKNOWLEDGMENTS

We wish to thank Brian Kuhn for assistance in the retrieval of CWT information from the Mark Recovery Computer Program (MRP-VAX), Carol Cross for providing the data on Hatchery Escapement and U.S. Recoveries, Bakhshish Dosanjh for conducting flesh proximate analyses and for assistance in fatty acid analyses. Thanks are also due to Alvin Solmie and staff of the fish culture facility of the Pacific Biological Station, for maintenance of the fish. We also acknowledge the contribution of Ted Down and Helen Dye for advice and assistance in the manipulation of datafiles and computer statistical tests, Karen Burke for conducting some statistical tests and preparation of figures, and Morva Booth for typing the manuscript and much effort in processing the Tables in this report.

REFERENCES

Bilinski, E., R. E. E. Jonas, M. D. Peters and E. M. Choromaski. 1984. Effects of sexual maturation on the quality of coho salmon (Oncorhynchus kisutch) flesh. J. Can. Inst. Food Sci. Tech. 17: 271-273.

Donaldson, E. M. and G. A. Hunter. 1981. Production of all female and sterile stocks of Pacific salmon for ocean ranching. Symposium of Fish Migration and Reproduction, Ocean Research Inst. U. of Tokyo Dec. 1 and 2, 1981. (Abstract).

Donaldson, E. M. and G. A. Hunter. 1982a. Sex control in fish with particular reference to salmonids. W.S. Hoar Symposium Fish Reproduction Behaviour and Endocrinology. Can. J. Fish. Aquat. Sci. 39: 99-110.

Donaldson, E. M. and G. A. Hunter. 1982b. The ocean release and contribution to the fishery of all female and sterile groups of coho salmon (Oncorhynchus kisutch). Proc. Int. Symp. Reprod. Physiol Fish 1982. 78 p.

Donaldson, E. M. and G. A. Hunter. 1985. Sex control in Pacific salmon. Implications for aquaculture and resource enhancement. Proc. of Salmonid Reproduction, and Int. Symp., Review Papers, R.N. Iwamoto S. Sower, Editors. wash. Seagrant Program, Bellevue, Wash., Oct. 31 - Nov. 2, 1983. p. 26-32.

Donaldson, E. M., G. A. Hunter, I. J. Baker and E. T. Stone. 1984. The first release of hormonally sterilized coho salmon (Oncorhynchus kisutch) into the marine environment. Int. Conf. on Biol. Pacific Salmon. Victoria/Agassiz, B.C. Sept. 5-12, 1984. (Abstract).

Fagerlund, U. H. M., J. R. McBride, B. S. Dosanjh, E. T. Stone and F. K. Sandercock. 1983. Infuence of culture density on juvenile coho salmon production and ocean survival. Smolt releases in 1979 and 1980 from Capilano Hatchery. Can. Tech. Rep. Fish. Aquat. Sci. No. 1229: 28 p.

Hunter, G. A. and E. M. Donaldson. 1983. Hormonal sex control and its application to fish culture. In: Fish Physiology (W.S. Hoar, D.J. Randall and E.M. Donaldson, eds.). Vol IX, Part B, Behaviour and Fertility control, Academic Press, N.Y. Chap. 5. p. 223-303.

Hunter, G. A., E. M. Donaldson and E. T. Stone. 1981. Control of sex in salmonids: pilot release of sterile and all-female groups of coho salmon (Oncorhynchus kisutch) from the Capilano Salmon Hatchery. 32nd Ann. NW Fish Cult. Conf.. Vance Tyee, Tumwater, Washington, Dec. 1-3, 1981. p. 83-87.

Table 1. Release Header Report.

TAG CODE	GROUP	STOCK	Broodyear	No. tagged	No. released	CWT % marked	Size at release (gm)	Release date day/month/yr	Fin clips[1]	Study type
021603	Sterile	Capilano coho	78	40858	40858	100.0	14.87	6 June 80	ADLV	EXP
021604	Female	Capilano coho	78	38506	38506	100.0	14.87	6 June 80	ADRV	EXP
022126	Production	Capilano coho	78	25872	51329	50.4	13.20	6 June 80	AD	EXP
	Grand Totals:			105236	130693					

[1]ADLV = adipose, left ventral; ADRV = adipose right ventral; AD = adipose only.
EXP - experimental

Table 2. Detailed recoveries by catch region and age. Capilano coho, 1978 broodyear.

Fishery - B.C. Commercial & Sport CATCH REGION		AGE CLASSES 2	3	4	5	6	TOTAL
	GROUP	TAG CODE					
	STERILE	021603					
NWTR	Obs	0	2	4	0	0	6
	Est	0	21	27	0	0	49
	Exp	0	21	27	0	0	49
SWTR	Obs	0	32	32	2	0	66
	Est	0	328	219	18	0	564
	Exp	0	328	219	18	0	564
GSTR	Obs	0	48	14	0	0	62
	Est	0	223	65	0	0	288
	Exp	0	223	65	0	0	288
NWTR & SWT	Obs	0	3	1	0	0	4
	Est	0	3*	1*	0	0	4
	Exp	0	3*	1*	0	0	4
NCTR	Obs	0	1	0	0	0	1
	Est	0	1	0	0	0	1
	Exp	0	1	0	0	0	1
SCTR	Obs	0	11	3	0	0	14
	Est	0	71	17	0	0	87
	Exp	0	71	17	0	0	87
FGN	Obs	0	1	0	1	0	2
	Est	0	4	0	4	0	8
	Exp	0	4	0	4	0	8
NN	Obs	0	1	0	0	0	1
	Est	0	2	0	0	0	2
	Exp	0	2	0	0	0	2
GSN	Obs	0	11	1	0	0	12
	Est	0	26	3	0	0	29
	Exp	0	26	3	0	0	29
JSN	Obs	0	22	5	0	0	27
	Est	0	75	17	0	0	92
	Exp	0	75	17	0	0	92
CN	Obs	0	0	1	0	0	1
	Est	0	0	4	0	0	4
	Exp	0	0	4	0	0	4
JFN	Obs	0	55	0	0	0	55
	Est	0	278	0	0	0	278
	Exp	0	278	0	0	0	278
SWVN	Obs	0	1	0	0	0	1
	Est	0	8	0	0	0	8
	Exp	0	8	0	0	0	8
CSPT	Obs	0	1	1	0	0	2
	Est	0	1	1	0	0	2
	Exp	0	1	1	0	0	2

Table 2 (cont'd)

Fishery - B.C. Commercial & Sport CATCH REGION		AGE CLASSES 2	3	4	5	6	TOTAL
WSPT	Obs	0	1	1	0	0	2
	Est	0	1	1	0	0	2
	Exp	0	1	1	0	0	2
GSPT	Obs	2	204	69	4	0	279
	Est	6*	916	216	13	0	1150
	Exp	6*	916	216	13	0	1150
TAG CODE TOTALS:							
Troll	Obs	0	97	54	2	0	153
	Est	0	647	329	18	0	994
	Exp	0	647	329	18	0	994
Net	Obs	0	91	7	1	0	99
	Est	0	393	25	4	0	422
	Exp	0	393	25	4	0	422
Sport	Obs	2	206	71	4	0	283
	Est	6	918	218	13	0	1154
	Exp	6	918	218	13	0	1154
Total	Obs	2	394	132	7	0	535
	Est	6	1958	572	34	0	2570
	Exp	6	1958	572	34	0	2570
	GROUP	TAG CODE					
	FEMALE	021604					
NWTR	Obs	0	3	1	0	0	4
	Est	0	24	6	0	0	30
	Exp	0	24	6	0	0	30
SWTR	Obs	0	38	0	0	0	38
	Est	0	304	0	0	0	304
	Exp	0	304	0	0	0	304
GSTR	Obs	0	30	0	0	0	30
	Est	0	132	0	0	0	132
	Exp	0	132	0	0	0	132
NWTR & SWT	Obs	0	4	0	0	0	4
	Est	0	4*	0	0	0	4
	Exp	0	4*	0	0	0	4
SCTR	Obs	0	6	0	0	0	6
	Est	0	31	0	0	0	31
	Exp	0	31	0	0	0	31
FGN	Obs	0	9	0	0	0	9
	Est	0	26*	0	0	0	26
	Exp	0	26*	0	0	0	26
GSN	Obs	0	4	0	0	0	4
	Est	0	13	0	0	0	13
	Exp	0	13	0	0	0	13
JSN	Obs	0	30	1	0	0	31
	Est	0	141	2	0	0	142
	Exp	0	141	2	0	0	142

Table 2 (cont'd)

Fishery - B.C. Commercial & Sport CATCH REGION		AGE CLASSES 2	3	4	5	6	TOTAL
JFN	Obs	0	70	0	0	0	70
	Est	0	344	0	0	0	344
	Exp	0	344	0	0	0	344
SWVN	Obs	0	3	0	0	0	3
	Est	0	4	0	0	0	4
	Exp	0	4	0	0	0	4
GSPT	Obs	2	426	0	0	0	428
	Est	6*	1971	0	0	0	1977
	Exp	6*	1971	0	0	0	1977
TAG CODE TOTALS:							
Troll	Obs	0	81	1	0	0	82
	Est	0	495	6	0	0	501
	Exp	0	495	6	0	0	501
Net	Obs	0	116	1	0	0	117
	Est	0	527	2	0	0	529
	Exp	0	527	2	0	0	529
Sport	Obs	2	426	0	0	0	428
	Est	6	1971	0	0	0	1977
	Exp	6	1971	0	0	0	1977
Total	Obs	2	623	2	0	0	627
	Est	6	2993	7	0	0	3006
	Exp	6	2993	7	0	0	3006
	GROUP PRODUCTION	TAG CODE 022126					
NWTR	Obs	0	6	0	0	0	6
	Est	0	61	0	0	0	61
	Exp	0	122	0	0	0	122
SWTR	Obs	0	43	0	0	0	43
	Est	0	357	0	0	0	357
	Exp	0	708	0	0	0	708
GSTR	Obs	0	38	0	0	0	38
	Est	0	170	0	0	0	170
	Exp	0	338	0	0	0	338
CTR	Obs	0	1	0	0	0	1
	Est	0	1*	0	0	0	1
	Exp	0	2*	0	0	0	2
NWTR & SWT	Obs	0	3	0	0	0	3
	Est	0	3*	0	0	0	3
	Exp	0	6*	0	0	0	6
SCTR	Obs	0	9	0	0	0	9
	Est	0	51	0	0	0	51
	Exp	0	101	0	0	0	101
FGN	Obs	0	11	0	0	0	11
	Est	0	34*	0	0	0	34
	Exp	0	67*	0	0	0	67

Table 2 (cont'd)

Fishery - B.C. Commercial & Sport CATCH REGION		AGE CLASSES 2	3	4	5	6	TOTAL
GSN	Obs	0	4	0	0	0	4
	Est	0	16	0	0	0	16
	Exp	0	32	0	0	0	32
JSN	Obs	0	39	0	0	0	39
	Est	0	172	0	0	0	172
	Exp	0	342	0	0	0	342
JFN	Obs	0	72	0	0	0	72
	Est	0	370	0	0	0	370
	Exp	0	733	0	0	0	733
GSPT	Obs	4	450	2	0	0	456
	Est	21	2057*	5	0	0	2083
	Exp	42	4081*	11	0	0	4133
TAG CODE TOTALS:							
Troll	Obs	0	100	0	0	0	100
	Est	0	643	0	0	0	643
	Exp	0	1276	0	0	0	1276
Net	Obs	0	126	0	0	0	126
	Est	0	592	0	0	0	592
	Exp	0	1175	0	0	0	1175
Sport	Obs	4	450	2	0	0	456
	Est	21	2057	5	0	0	2083
	Exp	42	4081	11	0	0	4133
Total	Obs	4	676	2	0	0	682
	Est	21	3292	5	0	0	3319
	Exp	42	6532	11	0	0	6584

* Error in catch/sample ratio, therefore, the catch/sample ratio was considered as 1.

Table 3. Detailed recoveries by catch region, monthly.

Fishery - B.C. Commercial and Sport Catch region		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
							MONTHS							
	GROUP	TAG CODE						RECOVERY YEAR 1980						
	STERILE	021603												
GSPT	Obs	0	0	0	0	0	0	0	0	0	1	0	1	2
	Est	0	0	0	0	0	0	0	0	0	5	0	1*	6
	Exp	0	0	0	0	0	0	0	0	0	5	0	1*	6
	GROUP	TAG CODE						RECOVERY YEAR 1981						
	STERILE	021603												
NWTR	Obs	0	0	0	0	0	0	1	0	1	0	0	0	2
	Est	0	0	0	0	0	0	10	0	11	0	0	0	21
	Exp	0	0	0	0	0	0	10	0	11	0	0	0	21
SWTR	Obs	0	0	0	0	0	0	19	4	9	0	0	0	32
	Est	0	0	0	0	0	0	159	41	128	0	0	0	328
	Exp	0	0	0	0	0	0	159	41	128	0	0	0	328
GSTR	Obs	0	0	0	0	0	0	42	4	2	0	0	0	48
	Est	0	0	0	0	0	0	187	30	7	0	0	0	223
	Exp	0	0	0	0	0	0	187	30	7	0	0	0	223
NWTR & SWT	Obs	0	0	0	0	0	0	1	2	0	0	0	0	3
	Est	0	0	0	0	0	0	1*	2*	0	0	0	0	3
	Exp	0	0	0	0	0	0	1*	2*	0	0	0	0	3
NCTR	Obs	0	0	0	0	0	0	1	0	0	0	0	0	1
	Est	0	0	0	0	0	0	1	0	0	0	0	0	1
	Exp	0	0	0	0	0	0	1	0	0	0	0	0	1
NN	Obs	0	0	0	0	0	0	1	0	0	0	0	0	1
	Est	0	0	0	0	0	0	2	0	0	0	0	0	2
	Exp	0	0	0	0	0	0	2	0	0	0	0	0	2
GSN	Obs	0	0	0	0	0	0	9	2	0	0	0	0	11
	Est	0	0	0	0	0	0	13	13	0	0	0	0	26
	Exp	0	0	0	0	0	0	13	13	0	0	0	0	26
JSN	Obs	0	0	0	0	0	1	12	3	6	0	0	0	22
	Est	0	0	0	0	0	2	33	14	27	0	0	0	75
	Exp	0	0	0	0	0	2	33	14	27	0	0	0	75
JFN	Obs	0	0	0	0	0	0	6	20	29	0	0	0	55
	Est	0	0	0	0	0	0	21	127	130	0	0	0	278
	Exp	0	0	0	0	0	0	21	127	130	0	0	0	278
SWVN	Obs	0	0	0	0	0	0	1	0	0	0	0	0	1
	Est	0	0	0	0	0	0	8	0	0	0	0	0	8
	Exp	0	0	0	0	0	0	8	0	0	0	0	0	8
CSPT	Obs	0	0	0	0	0	1	0	0	0	0	0	0	1
	Est	0	0	0	0	0	1	0	0	0	0	0	0	1
	Exp	0	0	0	0	0	1	0	0	0	0	0	0	1
WSPT	Obs	0	0	0	0	0	0	0	1	0	0	0	0	1
	Est	0	0	0	0	0	0	0	1	0	0	0	0	1
	Exp	0	0	0	0	0	0	0	1	0	0	0	0	1
GSPT	Obs	1	1	3	9	17	47	89	22	13	2	0	0	204
	Est	4	3	13	39	47	196	295	198	105	16	0	0	916
	Exp	4	3	13	39	47	196	295	198	105	16	0	0	916

Table 3 (cont'd)

Fishery - B.C. Commercial and Sport Catch region		MONTHS Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
RECOVERY YEAR TOTALS:														
Troll	Obs	0	0	0	0	0	0	69	12	16	0	0	0	97
	Est	0	0	0	0	0	0	382	92	174	0	0	0	647
	Exp	0	0	0	0	0	0	382	92	174	0	0	0	647
Net	Obs	0	0	0	0	0	1	29	25	36	0	0	0	91
	Est	0	0	0	0	0	2	77	153	161	0	0	0	393
	Exp	0	0	0	0	0	2	77	153	161	0	0	0	393
Sport	Obs	1	1	3	9	17	48	89	23	13	2	0	0	206
	Est	4	3	13	39	47	197	295	199	105	16	0	0	918
	Exp	4	3	13	39	47	197	295	199	105	16	0	0	918
Total	Obs	1	1	3	9	17	49	187	60	65	2	0	0	394
	Est	4	3	13	39	47	199	754	445	440	16	0	0	1958
	Exp	4	3	13	39	47	199	754	445	440	16	0	0	1958
	GROUP	TAG CODE						RECOVERY YEAR 1982						
	STERILE	021603												
NWTR	Obs	0	0	0	0	0	0	4	0	0	0	0	0	4
	Est	0	0	0	0	0	0	27	0	0	0	0	0	27
	Exp	0	0	0	0	0	0	27	0	0	0	0	0	27
SWTR	Obs	0	0	0	0	0	0	15	6	11	0	0	0	32
	Est	0	0	0	0	0	0	98	34	87	0	0	0	219
	Exp	0	0	0	0	0	0	98	34	87	0	0	0	219
GSTR	Obs	0	0	0	0	0	0	11	0	3	0	0	0	14
	Est	0	0	0	0	0	0	51	0	14	0	0	0	65
	Exp	0	0	0	0	0	0	51	0	14	0	0	0	65
NWTR &	Obs	0	0	0	0	0	0	0	1	0	0	0	0	1
SWT	Est	0	0	0	0	0	0	0	1	0	0	0 *	0	1
	Exp	0	0	0	0	0	0	0	1	0	0	0 *	0	1
SCTR	Obs	0	0	0	0	0	0	2	1	0	0	0	0	3
	Est	0	0	0	0	0	0	13	4	0	0	0	0	17
	Exp	0	0	0	0	0	0	13	4	0	0	0	0	17
GSN	Obs	0	0	0	0	0	0	0	0	0	0	1	0	1
	Est	0	0	0	0	0	0	0	0	0	0	3	0	3
	Exp	0	0	0	0	0	0	0	0	0	0	3	0	3
JSN	Obs	0	0	0	0	0	0	0	2	2	1	0	0	5
	Est	0	0	0	0	0	0	0	9	6	2	0	0	17
	Exp	0	0	0	0	0	0	0	9	6	2	0	0	17
CN	Obs	0	0	0	0	0	0	1	0	0	0	0	0	1
	Est	0	0	0	0	0	0	4	0	0	0	0	0	4
	Exp	0	0	0	0	0	0	4	0	0	0	0	0	4
CSPT	Obs	0	0	0	0	0	0	1	0	0	0	0	0	1
	Est	0	0	0	0	0	0	1	0	0	0	0	0	1
	Exp	0	0	0	0	0	0	1	0	0	0	0	0	1
WSPT	Obs	0	0	0	0	0	0	1	0	0	0	0	0	1
	Est	0	0	0	0	0	0	1	0	0	0	0	0	1
	Exp	0	0	0	0	0	0	1	0	0	0	0	0	1
GSPT	Obs	0	1	0	2	[illegible]	12	19	15	10	2	0	0	69
	Est	0	1	0	6	[illegible]	21	69	60	23	3	0	0	216
	Exp	0	1	0	6	34	21	69	60	23	3	0	0	216

Table 3 (cont'd)

Fishery - B.C. Commercial and Sport Catch region		MONTHS Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
RECOVERY YEAR TOTALS:														
Troll	Obs	0	0	0	0	0	0	32	8	14	0	0	0	54
	Est	0	0	0	0	0	0	189	39	101	0	0	0	329
	Exp	0	0	0	0	0	0	189	39	101	0	0	0	329
Net	Obs	0	0	0	0	0	0	1	2	2	1	1	0	7
	Est	0	0	0	0	0	0	4	9	6	2	3	0	25
	Exp	0	0	0	0	0	0	4	9	6	2	3	0	25
Sport	Obs	0	1	0	2	8	12	21	15	10	2	0	0	71
	Est	0	1	0	6	34	21	71	60	23	3	0	0	218
	Exp	0	1	0	6	34	21	71	60	23	3	0	0	218
Total	Obs	0	1	0	2	8	12	54	25	26	3	1	0	132
	Est	0	1	0	6	34	21	264	108	130	5	3	0	572
	Exp	0	1	0	6	34	21	264	108	130	5	3	0	572
	GROUP	TAG CODE						RECOVERY YEAR 1983						
	STERILE	021603												
SWTR	Obs	0	0	0	0	0	0	1	1	0	0	0	0	2
	Est	0	0	0	0	0	0	8	10	0	0	0	0	18
	Exp	0	0	0	0	0	0	8	10	0	0	0	0	18
FGN	Obs	0	0	0	0	0	0	0	0	1	0	0	0	1
	Est	0	0	0	0	0	0	0	0	4	0	0	0	4
	Exp	0	0	0	0	0	0	0	0	4	0	0	0	4
GSPT	Obs	0	0	0	0	0	1	1	1	1	0	0	0	4
	Est	0	0	0	0	0	4	2	3	3	0	0	0	13
	Exp	0	0	0	0	0	4	2	3	3	0	0	0	13
RECOVERY YEAR TOTALS:														
Troll	Obs	0	0	0	0	0	0	1	1	0	0	0	0	2
	Est	0	0	0	0	0	0	8	10	0	0	0	0	18
	Exp	0	0	0	0	0	0	8	10	0	0	0	0	18
Net	Obs	0	0	0	0	0	0	0	0	1	0	0	0	1
	Est	0	0	0	0	0	0	0	0	4	0	0	0	4
	Exp	0	0	0	0	0	0	0	0	4	0	0	0	4
Sport	Obs	0	0	0	0	0	1	1	1	1	0	0	0	4
	Est	0	0	0	0	0	4	2	3	3	0	0	0	13
	Exp	0	0	0	0	0	4	2	3	3	0	0	0	13
Total	Obs	0	0	0	0	0	1	2	2	2	0	0	0	7
	Est	0	0	0	0	0	4	10	13	7	0	0	0	34
	Exp	0	0	0	0	0	4	10	13	7	0	0	0	34

Table 3 (cont'd)

Fishery - B.C. Commercial and Sport Catch region		MONTHS Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
	GROUP	TAG CODE						RECOVERY YEAR 1980						
	FEMALE	021604												
GSPT	Obs	0	0	0	0	0	0	0	0	0	1	0	1	2
	Est	0	0	0	0	0	0	0	0	0	5	0	1*	6
	Exp	0	0	0	0	0	0	0	0	0	5	0	1*	6
	GROUP	TAG CODE						RECOVERY YEAR 1981						
	FEMALE	021604												
NWTR	Obs	0	0	0	0	0	0	1	2	0	0	0	0	3
	Est	0	0	0	0	0	0	5	19	0	0	0	0	24
	Exp	0	0	0	0	0	0	5	19	0	0	0	0	24
SWTR	Obs	0	0	0	0	0	0	31	4	3	0	0	0	38
	Est	0	0	0	0	0	0	240	35	28	0	0	0	304
	Exp	0	0	0	0	0	0	240	35	28	0	0	0	304
GSTR	Obs	0	0	0	0	0	0	29	1	0	0	0	0	30
	Est	0	0	0	0	0	0	124	8	0	0	0	0	132
	Exp	0	0	0	0	0	0	124	8	0	0	0	0	132
NWTR & SWT	Obs	0	0	0	0	0	0	2	2	0	0	0	0	4
	Est	0	0	0	0	0	0	2*	2*	0	0	0	0	4
	Exp	0	0	0	0	0	0	2*	2*	0	0	0	0	4
SCTR	Obs	0	0	0	0	0	0	4	2	0	0	0	0	6
	Est	0	0	0	0	0	0	17	14	0	0	0	0	31
	Exp	0	0	0	0	0	0	17	14	0	0	0	0	31
FGN	Obs	0	0	0	0	0	0	4	4	1	0	0	0	9
	Est	0	0	0	0	0	0	9*	11	6	0	0	0	26
	Exp	0	0	0	0	0	0	9*	11	6	0	0	0	26
GSN	Obs	0	0	0	0	0	0	1	3	0	0	0	0	4
	Est	0	0	0	0	0	0	1	11	0	0	0	0	13
	Exp	0	0	0	0	0	0	1	11	0	0	0	0	13
JSN	Obs	0	0	0	0	0	2	12	9	7	0	0	0	30
	Est	0	0	0	0	0	4	35	75	27	0	0	0	141
	Exp	0	0	0	0	0	4	35	75	27	0	0	0	141
JFN	Obs	0	0	0	0	0	0	0	29	41	0	0	0	70
	Est	0	0	0	0	0	0	0	176	168	0	0	0	344
	Exp	0	0	0	0	0	0	0	176	168	0	0	0	344
SWVN	Obs	0	0	0	0	0	0	2	0	1	0	0	0	3
	Est	0	0	0	0	0	0	2	0	2	0	0	0	4
	Exp	0	0	0	0	0	0	2	0	2	0	0	0	4
GSPT	Obs	2	0	3	5	44	295	168	52	34	2	1	0	426
	Est	7	0	13	108	121	397	557	469	275	16	8	0	1971
	Exp	7	0	13	108	121	397	557	469	275	16	8	0	1971

Table 3 (cont'd)

Fishery - B.C. Commercial and Sport Catch region		MONTHS Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
RECOVERY YEAR TOTALS:														
Troll	Obs	0	0	0	0	0	0	67	11	3	0	0	0	81
	Est	0	0	0	0	0	0	389	78	28	0	0	0	495
	Exp	0	0	0	0	0	0	389	78	28	0	0	0	495
Net	Obs	0	0	0	0	0	2	19	45	50	0	0	0	116
	Est	0	0	0	0	0	4	48	273	202	0	0	0	527
	Exp	0	0	0	0	0	4	48	273	202	0	0	0	527
Sport	Obs	2	0	3	25	44	95	168	52	34	2	1	0	426
	Est	7	0	13	108	121	397	557	469	275	16	8	0	1971
	Exp	7	0	13	108	121	397	557	469	275	16	8	0	1971
Total	Obs	2	0	3	25	44	97	254	108	87	2	1	0	623
	Est	7	0	13	108	121	400	993	820	506	16	8	0	2993
	Exp	7	0	13	108	121	400	993	820	506	16	8	0	2993
	GROUP	TAG CODE					RECOVERY YEAR 1982							
	FEMALE	021604												
NWTR	Obs	0	0	0	0	0	0	1	0	0	0	0	0	1
	Est	0	0	0	0	0	0	6	0	0	0	0	0	6
	Exp	0	0	0	0	0	0	6	0	0	0	0	0	6
JSN	Obs	0	0	0	0	0	0	1	0	0	0	0	0	1
	Est	0	0	0	0	0	0	2	0	0	0	0	0	2
	Exp	0	0	0	0	0	0	2	0	0	0	0	0	2
RECOVERY YEAR TOTALS:														
Troll	Obs	0	0	0	0	0	0	1	0	0	0	0	0	1
	Est	0	0	0	0	0	0	6	0	0	0	0	0	6
	Exp	0	0	0	0	0	0	6	0	0	0	0	0	6
Net	Obs	0	0	0	0	0	0	1	0	0	0	0	0	1
	Est	0	0	0	0	0	0	2	0	0	0	0	0	2
	Exp	0	0	0	0	0	0	2	0	0	0	0	0	2
Total	Obs	0	0	0	0	0	0	2	0	0	0	0	0	2
	Est	0	0	0	0	0	0	7	0	0	0	0	0	7
	Exp	0	0	0	0	0	0	7	0	0	0	0	0	7
	GROUP	TAG CODE					RECOVERY YEAR 1980							
	PRODUCTION	022126												
GSPT	Obs	0	0	0	0	0	0	0	0	1	3	0	0	4
	Est	0	0	0	0	0	0	0	0	7	14	0	0	21
	Exp	0	0	0	0	0	0	0	0	14	28	0	0	42

Table 3 (cont'd)

Fishery - B.C. Commercial and Sport Catch region		MONTHS Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
	GROUP PRODUCTION	TAG CODE 022126						RECOVERY YEAR 1981						
NWTR	Obs	0	0	0	0	0	0	4	2	0	0	0	0	6
	Est	0	0	0	0	0	0	36	25	0	0	0	0	61
	Exp	0	0	0	0	0	0	72	50	0	0	0	0	122
SWTR	Obs	0	0	0	0	0	0	36	4	3	0	0	0	43
	Est	0	0	0	0	0	0	283	40	34	0	0	0	357
	Exp	0	0	0	0	0	0	561	79	68	0	0	0	708
GSTR	Obs	0	0	0	0	0	0	38	0	0	0	0	0	38
	Est	0	0	0	0	0	0	170	0	0	0	0	0	170
	Exp	0	0	0	0	0	0	338	0	0	0	0	0	338
CTR	Obs	0	0	0	0	0	0	1	0	0	0	0	0	1
	Est	0	0	0	0	0	0	1*	0	0	0	0	0	1
	Exp	0	0	0	0	0	0	2*	0	0	0	0	0	2
NWTR & SWT	Obs	0	0	0	0	0	0	3	0	0	0	0	0	3
	Est	0	0	0	0	0	0	3*	0	0	0	0	0	3
	Exp	0	0	0	0	0	0	6*	0	0	0	0	0	6
SCTR	Obs	0	0	0	0	0	0	6	3	0	0	0	0	9
	Est	0	0	0	0	0	0	32	19	0	0	0	0	51
	Exp	0	0	0	0	0	0	63	37	0	0	0	0	101
FGN	Obs	0	0	0	0	0	0	6	4	1	0	0	0	11
	Est	0	0	0	0	0	0	14*	16	4	0	0	0	34
	Exp	0	0	0	0	0	0	28*	32	7	0	0	0	67
GSN	Obs	0	0	0	0	0	0	0	4	0	0	0	0	4
	Est	0	0	0	0	0	0	0	16	0	0	0	0	16
	Exp	0	0	0	0	0	0	0	32	0	0	0	0	32
JSN	Obs	0	0	0	0	0	3	18	13	5	0	0	0	39
	Est	0	0	0	0	0	5	57	91	20	0	0	0	172
	Exp	0	0	0	0	0	9	113	181	40	0	0	0	342
JFN	Obs	0	0	0	0	0	0	6	40	26	0	0	0	72
	Est	0	0	0	0	0	0	21	242	106	0	0	0	370
	Exp	0	0	0	0	0	0	42	481	210	0	0	0	733
GSPT	Obs	1	1	0	19	47	89	198	53	39	1	1	1	450
	Est	4	3	0	82	129	372	656	478	316	8	8	1*	2057
	Exp	7	6	0	163	257	738	1302	948	627	16	16	2*	4081

Table 3 (cont'd)

Fishery - B.C. Commercial and Sport Catch region		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
							MONTHS							
RECOVERY YEAR TOTALS:														
Troll	Obs	0	0	0	0	0	0	88	9	3	0	0	0	100
	Est	0	0	0	0	0	0	525	84	34	0	0	0	643
	Exp	0	0	0	0	0	0	1041	167	68	0	0	0	1276
Net	Obs	0	0	0	0	0	3	30	61	32	0	0	0	126
	Est	0	0	0	0	0	5	92	366	130	0	0	0	592
	Exp	0	0	0	0	0	9	183	726	257	0	0	0	1175
Sport	Obs	1	1	0	19	47	89	198	53	39	1	1	1	450
	Est	4	3	0	82	129	372	656	478	316	8	8	1	2057
	Exp	7	6	0	163	257	738	1302	948	627	16	16	2	4081
Total	Obs	1	1	0	19	47	92	316	123	74	1	1	1	676
	Est	4	3	0	82	129	376	1274	928	480	8	8	1	3292
	Exp	7	6	0	163	257	747	2527	1840	952	16	16	2	6532
	GROUP	TAG CODE						RECOVERY YEAR 1982						
	PRODUCTION	022126												
GSPT	Obs	0	0	0	0	0	1	1	0	0	0	0	0	2
	Est	0	0	0	0	0	2	4	0	0	0	0	0	5
	Exp	0	0	0	0	0	3	7	0	0	0	0	0	11

*Error in catch/sample ratio, therefore, the catch/sample ratio was considered as 1.

Table 4. Length in mm of coho salmon in the fishery by recovery year.

Fishery	RECOVERY YEAR 1981 Observed	Mean Length	Sample Size	Variance	RECOVERY YEAR 1982 Observed	Mean Length	Sample Size	Variance
GROUP STERILE	TAG CODE 021603				TAG CODE 021603			
B.C. Commercial	188	484	187	2214	61	607	58	2784
B.C. Sport - Marine	206	0	0	0	71	0	0	0
- Freshwater	0	0	0	0	0	0	0	0
Total Commercial	188	484	187	2214	61	607	58	2784
Total Sport	206	0	0	0	71	0	0	0
* Grand Total *	394	484	187	2214	132	607	58	2784
GROUP FEMALE	TAG CODE 021604				TAG CODE 021604			
B.C. Commercial	197	526	196	2506	2	567	2	13
B.C. Sport - Marine	426	0	0	0	0	0	0	0
- Freshwater	0	0	0	0	0	0	0	0
Total Commercial	197	526	196	2506	2	567	2	13
Total Sport	426	0	0	0	0	0	0	0
* Grand Total *	623	526	196	2506	2	567	2	13
GROUP PRODUCTION	TAG CODE 022126				TAG CODE 022126			
B.C. Commercial	226	521	226	3037	0	0	0	0
B.C. Sport - Marine	450	0	0	0	2	0	0	0
- Freshwater	0	0	0	0	0	0	0	0
Total Commercial	226	521	226	3037	0	0	0	0
Total Sport	450	0	0	0	2	0	0	0
* Grand Total *	676	521	226	3037	2	0	0	0

Table 5. Commercial and sport catch regions and corresponding catch regions and statistical areas (abbreviations used in Tables 2 and 3 and Figures 1 and 2).

Commercial C.R.	Catch regions included	Statistical areas
Northern (N)	Northern Troll (NTR)	1-5
	Northern Net (NN)	1-5
Central(C)	Central Troll (CTR)	6-12, 30
	Central Net (CN)	6-11
Northwest Van. Isl. (NW)	Northwest Troll (NWTR)	25-27
	Northwest Net (NWVN)	25-27
Southwest Van. Isl. (SW)	Southwest Troll (SWTR)	21, 23, 24
	Southwest Net (SWVN)	21-24
Johnstone Str. (JS)	Johnstone Strait Net (JSN)	12-13
Georgia Str. (GS)	Georgia Strait Troll (GSTR)	13-18, 29A-29C
	Georgia Strait Net (GSN)	14-18
	Fraser River Gillnet (FGN)	29A-29E
Juan De Fuca Str. (JF)	Juan De Fuca Net (JFN)	20
Georgia Str. Sport	Georgia Str. Sport (GSPT)	13-20, 28, 29

Table 6. Total contribution to the fishery per 10,000 fish released. Capilano coho brood 1978.

Fishery		Sport				ST	Commercial				ST	U.S. recoveries			ST	Fishery total				
Year, Group CWT #	Age	2	3	4	5		2	3	4	5		2	3	4		2 1980	3 1981	4 1982	5 1983	Total
1978																				
Sterile 02 16 03		2	225	54	4	285	0	242	87	6	335	1	75	23	99	3	542	164	10	719
Female 02 16 04		2	512	0	0	514	0	252	2	0	254	0	236	0	236	2	1000	2	0	1004
Production 02 21 26		9	795	3	0	807	0	452	0	0	452	0	337	1	338	9	1584	4	0	1597
	Total	13	1532	57	4	1606	0	946	89	6	1041	1	648	24	673	14	3126	170	10	3320

Fishery		Hatchery escapement			ST	Grand total				
Year, Group CWT #	Age	2	3	4		2 1980	3 1981	4 1982	5 1983	Total
1978										
Sterile 02 16 03		0	13	0	13	3	555	164	10	732
Female 02 16 04		0	192	0	192	2	1192	2	0	1196
Production 02 21 26		9	387	0	396	18	1971	4	0	1993
	Total	9	592	0	601	23	3718	170	10	3921

ST - sub-total

Table 7. Sport and commercial fisheries contribution by catch region based on 10,000 fish released.

		Sport				Commercial						
Group[1]	Age 2	3	4	5	total	2	Sub-3	4	5	total	Total	Sub-Catch region
Northern	ST	0	0	0	0	0	0	1	0	0	1	1
	FE	0	0	0	0	0	0	0	0	0	0	0
	PR	0	0	0	0	0	0	0	0	0	0	0
Central	ST	0	1	1	0	2	0	18	5	0	23	25
	FE	0	0	0	0	0	0	0	0	0	0	0
	PR	0	0	0	0	0	0	1	0	0	1	1
Northwest V.I.	ST	0	0	0	0	0	0	6	7	0	13	13
	FE	0	0	0	0	0	0	7	2	0	9	9
	PR	0	0	0	0	0	0	22	0	0	22	22
Southwest V.I.	ST	0	1	1	0	2	0	86	54	5	145	147
	FE	0	0	0	0	0	0	80	0	0	80	80
	PR	0	0	0	0	0	0	141	0	0	141	141
Johnstone Strait	ST	0	0	0	0	0	0	18	4	0	22	22
	FE	0	0	0	0	0	0	45	1	0	46	46
	PR	0	0	0	0	0	0	86	0	0	86	86
Georgia Strait	ST	2	225	54	4	285	0	47	17	1	65	350
	FE	2	512	0	0	514	0	31	0	0	31	545
	PR	8	795	3	0	806	0	59	0	0	59	866
Juan de Fuca Strait	ST	0	0	0	0	0	0	68	0	0	68	68
	FE	0	0	0	0	0	0	90	0	0	90	90
	PR	0	0	0	0	0	0	143	0	0	143	143

[1]ST = sterile; FE = Female; PR = Production

Table 8. Georgia Strait sport fishery contribution per 10,000 fish released, by statistical areas. Capilano coho brood 1978.

Year, Group	Age	2 (1980)			3 (1981)							4 (1982)							5 (1983)		
CWT #	Statistical area	13	14	17	13	14	15	16	17[1]	19[2]	28[3]	13	14	15	16	17[1]	19[2]	28[3]	14	16	17
1978																					
Sterile 02 16 03		0	0	2	17	62	10	81	41	2	12	8	19	3	14	10	0	4	2	1	1
Female 02 16 04		0	0	2	50	93	32	142	89	6	100	0	0	0	0	0	0	0	0	0	0
Production 02 21 26		2	2	4	60	138	20	226	136	12	203	1	0	0	0	0	1	0	0	0	0
	Total	2	2	8	127	293	62	449	266	20	315	9	19	3	14	10	1	4	2	1	1

[1]Includes statistical areas 17 and 18

[2]Includes statistical areas 19 and 20

[3]Includes statistical areas 28 and 29, 96-100% of the contribution in statistical area 28.

Table 9. U.S. Recoveries by area and age, based on 10,000 fish releases.

Area	Group	Age 2 (1980)	Age 3 (1981)	Age 4 (1982)	TOTAL
Washington Troll	ST	0	22	3	25
	FE	0	40	0	40
	PR	0	63	0	63
Washington Sport	ST	0	4	1	5
	FE	0	12	0	12
	PR	0	28	0	28
Puget Sound Net	ST	0	32	6	38
	FE	0	156	0	156
	PR	0	200	1	201
Puget Sound Sport	ST	1	13	13	27
	FE	0	4	0	4
	PR	0	16	0	16
Oregon Troll	ST	0	4	0	4
	FE	0	23	0	23
	PR	0	28	0	28
Oregon Sport	ST	0	0	0	0
	FE	0	1	0	1
	PR	0	2	0	2
Total U.S. Recoveries	ST	1	75	23	99
	FE	0	236	0	236
	PR	0	337	1	338

Table 10. Sex differentiation and gonadal morphology of androgen (MT) and estrogen (E_2) treated coho salmon, PBS Nanaimo netpen subgroup. Capilano coho brood 1978.

Treatment	No. of fish	No. samples to Jan. 1982	Adult sex types %			
			Male	Female	Sterile	Intersex
MT (LV clipped)	1000	348	2.9	0.0	97.1	0.0
E_2 (RV clipped)	1000	293	0.0	99.0	0.0	1.0

MT = 17¶-methyltestosterone

E_2 = 17β-estradiol

LV = left ventral

RV = right ventral

Table 11. Growth data of sterile and female coho salmon subgroups held in netpens, Nanaimo (PBS). Capilano coho brood 1978.

Sample date		Sterile (LV)						Female (RV)					
		N[a]	Weight ± SD (kg)		Length ± SD (cm)		GSI	N[a]	Weight ± SD		Length ± SD		GSI
1981 (Age 3)	Jan. 16	16	0.26	0.43	26.9	1.5	0.19	24	0.29	0.52	27.5	1.4	0.38
	June 24	100	0.65	0.15	37.9	3.5	0.08	100	0.80	0.16	40.5	2.9	1.12
	Sept. 4	50	0.86	0.16	41.2	2.4	0.06	32	1.20	0.21	45.2	2.6	6.36
	Nov. 5	31	1.01	0.20	43.0	2.5	0.05	29	1.24	0.24	46.5	2.9	15.81
1982 (Age 4)	Jan. 20	29	1.10	0.21	45.1	3.0	-	-	-		-		-
	May 13	53	1.28	0.44	46.9	5.4	-	-	-		-		-
	Aug. 26	51	1.78	0.68	47.2	5.2	-	-	-		-		-
	Dec. 1	82	2.02	0.66	47.9	4.3	-	-	-		-		-
1982 (Age 5)	May 10	50	2.58	0.77	58.4	5.2	-	-	-		-		-
	Sept. 13	55	2.32	0.73	57.0	5.6	-	-	-		-		-
1984 (Age 6)	Feb. 3	33	2.06	0.54	57.6	3.9	-	-	-		-		-

LV = left ventral clip

RV = right ventral clip

GSI = Gonadosomatic index = gonad wt/body wt x 100

[a] = fish removed from the group at the time of sampling

Table 12. Composition of raw flesh of adult[1] sterile and female coho salmon. Nanaimo netpen subgroups (%, wet weight basis).[2]

	Experimental groups		Normal Capilano escapement[3]	
	Sterile[4] Oct/Nov	Female[4] Oct/Nov	Mixed sex group[4] July	October
Moisture	71.89 ± 1.06[a]	76.13 ± 1.43[a]	70.40 ± 1.41	77.21 ± 0.68
Lipid	5.12 ± 1.33[a]	2.92 ± 0.92[a]	5.76 ± 1.70	2.74 ± 0.47
Protein	21.49 ± 0.76[a]	19.56 ± 0.85[a]	22.06 ± 0.96	19.17 ± 0.67
Ash	1.75 ± 0.09[a]	1.44 ± 0.09[a]	N/A	N/A

[1]3 year old fish. Sampled Nov. 1/81

[2]Mean and SD; N = 10; [a] = significantly different ($P < 0.001$)

[3]Data from Bilinski et al. 1984

[4]Mean wt (kg) sterile: 1.01; female: 1.24; mixed sex: 1.20. N = 10-14 fish/group

N/A Data not available

Table 13. Percent fatty acid composition of adult[1] sterile and female salmon. Nanaimo netpen subgroup.

Family name (Omega series)	Fatty acid	Sterile[2] %	Female[3] %
	16:0	17.45	12.36
	16:1	8.70	7.36
	17:1	1.00	0.94
	18:0	4.27	4.19
Oleic fatty acids	18:1ω9	25.74	25.25
(ω9 series)	20:1ω9	7.20	8.20
	22:1ω9	5.27	5.51
	24:1ω9	-	-
Linoleic fatty acids	18:2ω6	10.08	9.77
(ω6 series)	20:3ω6	-	-
	20:4ω6	0.59	2.73
Linolenic fatty acids	18:4ω3	-	-
(ω3 series)	18:4ω3	2.32	3.05
	20:5ω3	4.92	3.64
	22:5ω3	0.90	2.26
	22:6ω3	10.39	14.05

[1]3 year old fish. Sampled Nov. 1981

[2]Mean weight 1.01 kg; lipid 5.13% N = 4

[3]Mean weight 1.24 kg; lipid 2.74% N = 8

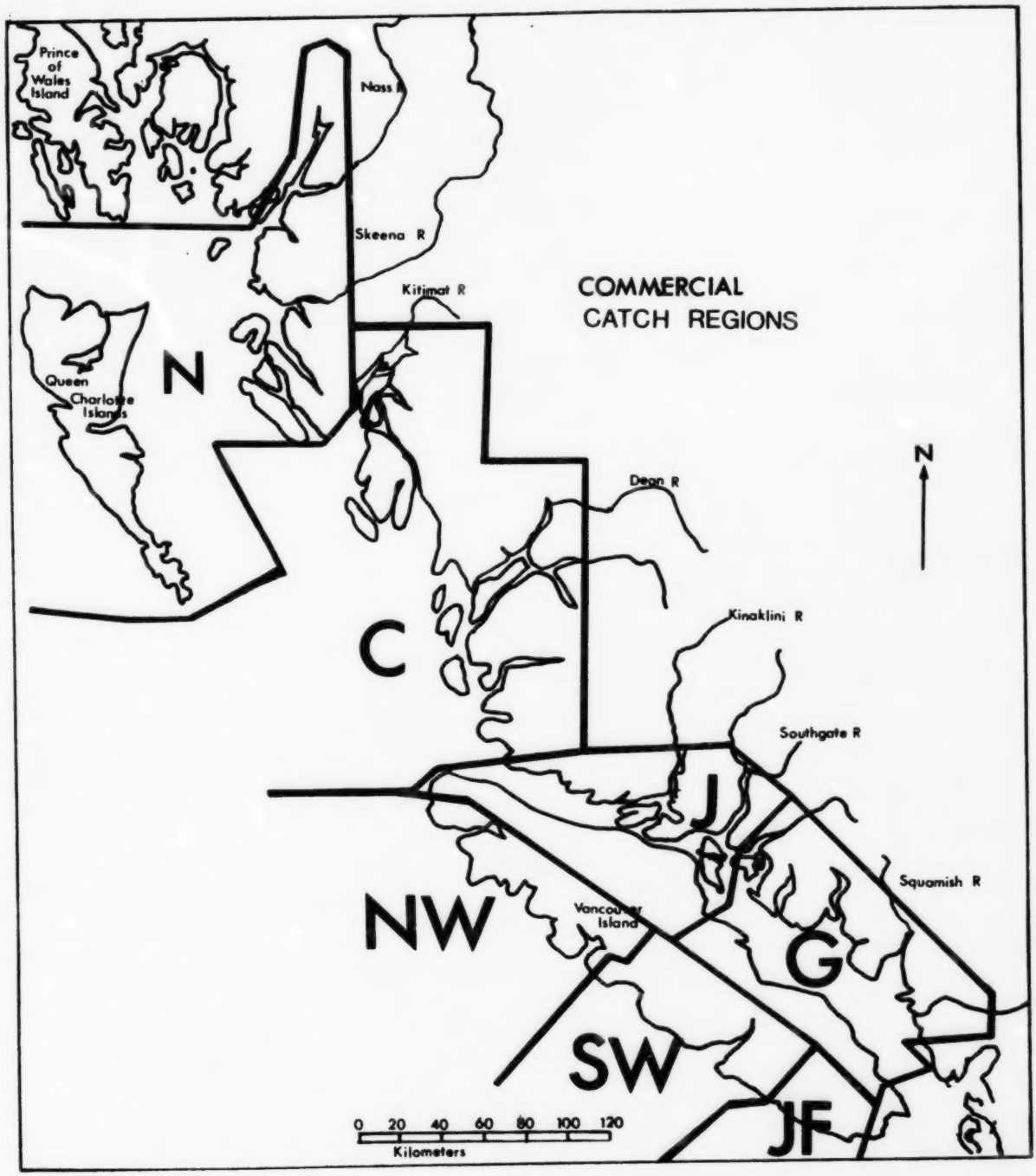

Fig. 1. Commercial Catch Regions in British Columbia. For legend (abbreviations) and statistical areas included refer to Table 5.

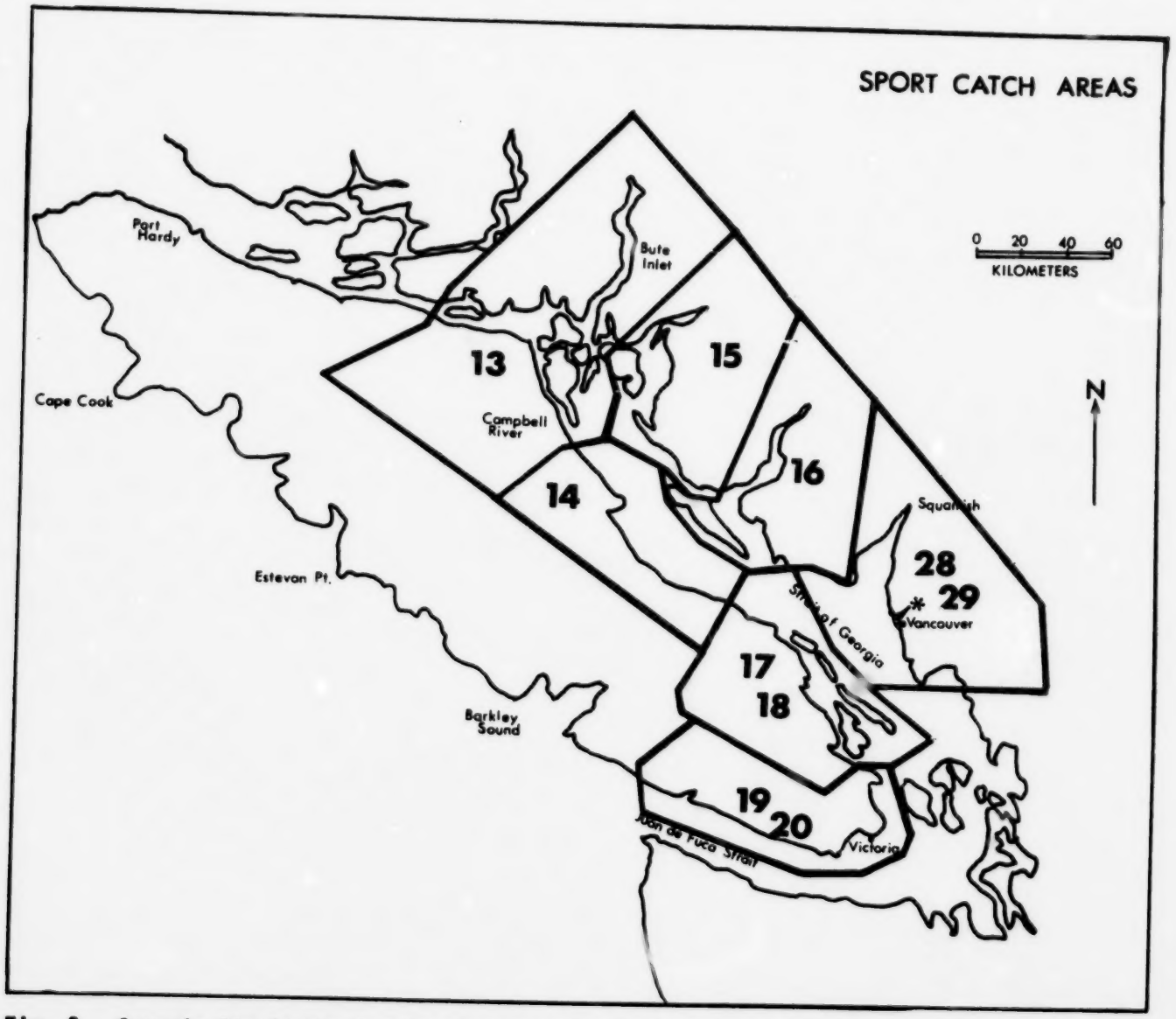

Fig. 2. Georgia Strait Sport Catch Region, statistical areas and location of the Capilano Salmon Hatchery (asterisk).